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BORERS IN SHADE TREES AND HARDY SHRUBS

Most insects boring in the wood of shade trees and hardy shrubs are secondary enemies of the plants attacked. That is, these borers attack only those trees and shrubs that are wounded or weakened, sickly, or dying from some cause, or are dead. In the case of these borers, primary emphasis should be placed upon preventing attack. This can be done by the maintenance of vigor in trees, and this involves a consideration of the commonest causes of lack of vitality. These are treated later.

When trees and shrubs are infested by boring insects it is important to determine carefully how serious the condition of the plant is. There is nothing to be gained by attempting to save a tree that cannot be saved, and if the plant remaining after treatment will not be attractive, it may best be destroyed and replaced. If it is decided to work on a certain tree or shrub, the first thing to do is to clean up the borer infestation.

Removal of infested material.-- This may be done by cutting out the borers or removing the borer-infested wood and destroying it.

Carbon disulphide injections.-- It is also possible at times to kill borers by injecting a small quantity of carbon disulphide into their galleries, using an oil can, and then plugging the opening tightly with wax or putty. Carbon disulphide is inflammable and poisonous and must be handled with care. It should not be handled or stored near fire and its fumes should not be inhaled.

Painting with paradichlorobenzene and cottonseed oil mixture.-- A mixture of 1 pound of paradichlorobenzene in 2 quarts of cottonseed oil makes a borer paint that usually penetrates galleries and kills the grubs. This material should be daubed on the mark of borer attack or wound, but should not be permitted to run down the bark.

Treatment of wounds.-- The wounds made by the borers and in the elimination of the insects should be cared for as advised under "Wounds and Injuries" in the section dealing with prevention of borer attack.

Restoration of vigor.-- In the case of trees and shrubs attacked by borers it is of great importance that steps be taken to build up vigor in the plants to prevent further infestation and to aid healing in the area already worked upon. The methods for restoration of vigor are the same as those for maintenance of vitality and are given in the following section dealing with the prevention of borer attack.

PREVENTING INFESTATION OF TREES AND SHRUBS BY BORING INSECTS

1. Transplanting.-- Trees and shrubs are almost always injured to some extent by moving. To avoid this injury, select individual plants that are vigorous, preferably those that have been transplanted before and that have been growing in a location and under conditions as near like the one where they are going to be planted as possible. For example, if the tree or shrub is to be placed out in the open, unsheltered, and by itself, pick a plant that has been growing under such conditions. Next, dig and move the plant carefully and rapidly, retaining all of the fine roots that can be preserved and keeping them protected in the soil of the original location. Keep the roots and earth moist while the plant is out of the ground. This can usually be done by wrapping the "ball" with moist burlap. Place the tree or shrub carefully in its new location, filling in the hole around the "ball" with good top soil, well tamped down and watered. Cut back the top of the plant somewhat, especially by removing unnecessary branches. Give the tree plenty of water occasionally but do not drown it. Do not fertilize it strongly the first year. And finally, protect all the bark possible from strong full sunlight by a loose wrapping of burlap on the trunk and larger branches.

2. Grading and filling.-- When changing the ground level about trees and shrubs, endeavor to do it with a minimum of disturbance to the roots and try to leave conditions on the finished job as much as possible like they were before. If soil has been removed, endeavor to arrange so that some other form of cover gives the more shallowly placed roots something of the protection they formerly had. If a fill is intended, cover the ground surface with a thick layer of loose rubble, from the trunk out under the reaches of the branches, and put the earth filling on this, leaving a "well" around the trunk. (The rubble filling can be stones, broken brick, pieces of concrete, tin cans, and branches). Run a few terra cotta or other pipes from the new ground surface to the rubble. Finally, prune the tree carefully, removing all unnecessary branches, and water the rubble field through the pipes occasionally.

3. Thinning out.-- When it is necessary to thin out a grove or stand of trees about a house or for building, endeavor to make the changes slowly, occupying several years or many years, if possible. If it must be done rapidly, take the trees that can best be spared and select preferably the older trees for removal. Try to supply ground cover sufficient to protect the roots and prevent too great lowering of the water table or ground water level. Prune the trees left somewhat and protect their bark, especially on the trunk and limbs, from too much strong sunlight by loose burlap wrappings. At intervals for several years, water the trees so treated.

4. Counteracting the effects of drought.-- During excessively dry years, give the ground under trees an occasional soaking. It is not so necessary to do this frequently as it is to give a copious watering when it is done. It is also well to remember that trees which are generally very plentifully supplied with moisture are more apt to suffer severely under drought conditions than trees ordinarily less well supplied.

5. Selection or improvement of soil. -- Trees and shrubs should be grown in the kind of soil that the species prefers. This is true with regard to type of soil, soil moisture, soil reaction, etc. It is a good plan to endeavor to learn what will grow best in the location where you wish to plant a tree and to select from the most suitable material. If this cannot be done or is not done, the next best thing is to find out what the plant selected or present requires and endeavor to meet those requirements.

6. Fertilizing. -- Many trees get very little attention or assistance. Often they do not need much, but under shade-tree conditions where very little material of use to the tree finds its way back into the soil and where leaves and grass cuttings are raked up and disposed of, occasional fertilization is desirable. A light dressing of some good commercial fertilizer, applied out from the trunk under the reaches of the branches and deep enough to get to the tree roots, at least in part, is excellent.

7. Pruning. -- Not infrequently trees have branches that are weakened for some reason, or are undesirable, or are situated so that their foliage competes for sunlight with the foliage of some more important branch. For these and other reasons it may be necessary or desirable to prune the tree. When pruning, it is important to consider the entire tree and its purpose. The pruning work when completed should leave an agreeably shaped remnant, which is at least as strong as before and preferably stronger, and with improved possibilities of development.

8. Controlling other insects and disease. -- For maintenance of vigor it is important to control the attacks of devitalizing insects and diseases.

9. Treatment of wounds and injuries. -- Wounds and injuries should be carefully cleaned. All injured material should be removed to leave a clean, sound, wood surface. This area should be thickly coated with some wood preservative, such as shellac, coal-tar creosote, or paint, and should be kept so coated until healing is complete. Shellac only should be used along the margins of a wound where the bark and the wood meet. Where desired, fillings can be placed in cavities, but it should be borne in mind that proper cavity filling is a difficult job for one unskilled in the task.

TREE SURGEONS AND ARBORISTS

Most of the work advised above really demands skill and knowledge of trees. The layman can perform it if he is handy with plants and tools, careful, painstaking, and gives some serious consideration to the problem. There are, however, men who are specialists in this field and who are careful, skilled workers. These are usually not itinerant individuals, and they certainly are not men using some secret preparation that is to be placed in holes bored in the tree or in the ground about trees and that is supposed to cure all ills. They are usually well known in the community or vicinity where they work and have an established reputation. Where possible, it is advisable that such individuals be consulted.

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